IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): **Chen, et. al.** Application Serial No.: **10/631,947** Filed: **July 30, 2003** Title: **METHOD AND SYSTEM FOR CONFIGURING GATEWAYS TO FACILITATE A MODEM CONNECTION OVER A PACKET NETWORK**	Group Art Unit: 2616 Examiner: O'Connor, Brian T.

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

This is an Appeal from the Examiner's Rejection of claims 1, 3, 6, 7, 9, 13, 15, 18 and 20, after filing of an Appeal Brief on February 28, 2008. The *Final* Rejection issued on January 22, 2009. The Notice of Appeal was filed in the U.S. Patent and Trademark Office on February 10, 2009.

REAL PARTY IN INTEREST

The real party in interest is Mindspeed Technologies, Inc.

RELATED APPEALS AND INTERFERENCES

There are no related Appeals or Interferences.

STATUS OF CLAIMS

Claims 1, 3, 6, 7, 9, 13, 15, 18 and 20 are pending, and claims 2, 4, 5, 8, 10, 11, 14, 16, 17, 19, 21 and 22 were canceled in previous amendments. Claims 1, 3, 6, 7, 9, 13, 15, 18 and 20 have been rejected in the *Final* Rejection of January 22, 2009. This Appeal is directed to the rejection of claims 1, 3, 6, 7, 9, 13, 15, 18 and 20. Claims 1, 3, 6, 7, 9, 13, 15, 18 and 20 appear in an Appendix to this Appeal Brief.

STATUS OF AMENDMENTS

No claim amendments have been entered after issuance of the *Final* Rejection of January 22, 2009.

SUMMARY OF CLAIMED SUBJECT MATTER

A. Brief Summary

FIG. 1 of the present application illustrates a block diagram of a conventional communication model for Modem over Internet Protocol ("MoIP") based on a packet-based network, such as the Internet. As shown in FIG. 1, communication model 100 includes first modem (M1) 110 in communication with first gateway communication device (G1) 120 over PSTN providing transmit and receive channels 112 and 114. Communication model 100 further includes second modem (M2) 150 in communication with second gateway communication device 140 (G2) over PSTN providing transmit and receive channels 144 and 142.

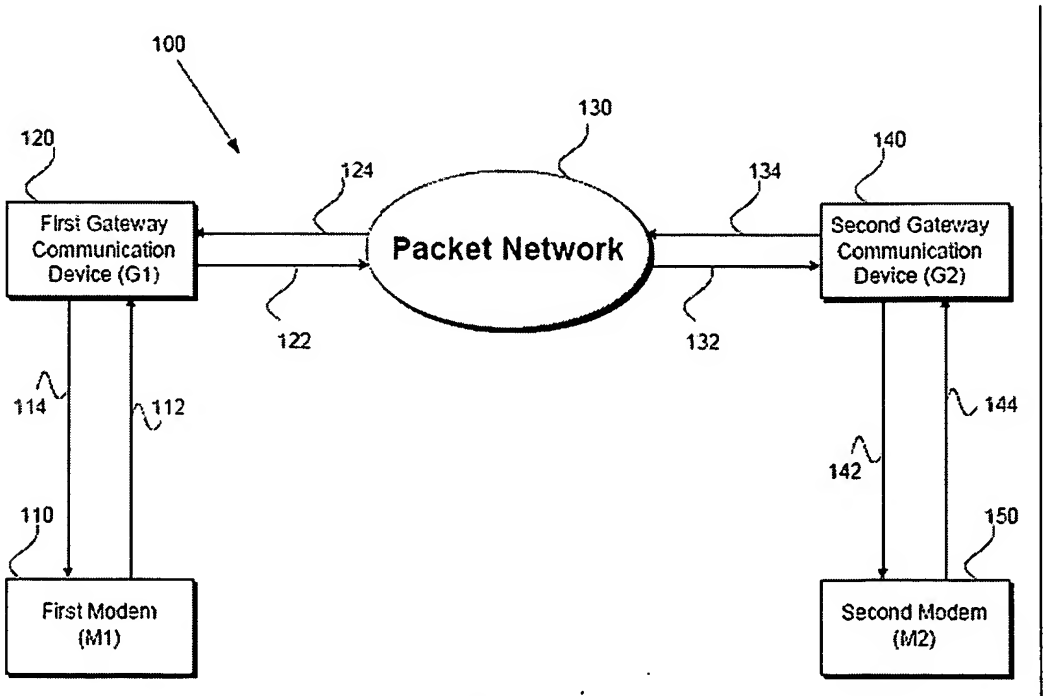


FIG. 1
(PRIOR ART)

Conventionally, the communication process for MoIP begins when M1 110 calls G1 120. As a result of receiving such call from M1 110, G1 120 calls G2 140, and G2 140 in turn calls M2 150. In order to support VoIP, in their default mode of operation, G1 120 and G2 140 start to communicate in voice mode and are configured to use a compressed voice protocol, such as the ITU standard G.723.1. However, when M2 150 answers the incoming call from G2 140, M2 150 generates an answer tone, e.g. a single tone at 2100 Hz, that causes G1 120 and G2 140 to switch to a higher quality voice protocol, such as an ITU standard G.711, which provides toll quality audio at 64 Kbps using either A-Law or mu-Law pulse code modulation methods. This digital format is used in order to allow easy connections to legacy telephone networks. By switching to G.711, the tones generated by M2 150 may propagate through G2 140 and G1 120 with less distortion in order to reach M1 110 at the other side. As a result of configuring G1 120 and G2 140 for a new mode of operation, which is commonly referred to as modem pass through mode, G1 120 and G2 140 facilitate a toll quality voice path, through which path, M1 110 and M2 150 may communicate with one another. In order to minimize the effect of network impairments, such as packet losses, jitter and delay, in the modem pass through mode, G1 120 and G2 140 further configure themselves to adjust the jitter buffer size, disable echo suppressors and disable echo cancellers.

Traditionally, G2 140 determines that M2 150 is a modem and switches to modem pass through mode as a result of detecting the answer tone that is transmitted by M2 150 after being placed off-hook in response to G2 140 call. Once G2 switches to pass through

mode, the answer tone is transmitted to G1 120 using a higher quality voice coding algorithm, such as G.711, which encodes the answer tone for transmission by G2 140 to G1 120 over packet network 130. Further, once G1 120 detects the encoded answer tone from G2 140, G1 120 also switches to pass through mode.

As it is known in the art, a modem answer tone has different types, such as pure answer tone (ANS), amplitude-modulated answer tone (ANSam), phase-reversed answer tone (/ANS), and phase-reversed amplitude-modulated answer tone (/ANSam). ANSam is known to be a sinewave at 2100Hz signal, which is amplitude modulated at 15Hz, and is indicative of modem modulation capabilities according to ITU-T V.34, V.90 or V.92 standards. A phase-reversed answer tone also indicates high-speed modem modulation capabilities that are facilitated by standards such as ITU-T V.32, V.32bis, V.34, V.90 and V.92 or protocols such as K56.

Typically, upon the detection of the phase-reversed answer tone, network echo cancellers are disabled. It is known that network echo cancellers interfere with high-speed modem connections and may cause modems to fall back to lower speeds during the training and negotiation phase. Therefore, it is desirable that G1 120 and G2 140 disable their echo cancellers upon detection of a phase reversal in the answer tone. However, based on the existing implementations of the modem pass through mode, G1 120 does not detect the phase-reversed answer tone (/ANS or /ANSam) reliably due to network impairments and the fact that G1 receives an encoded version of the phase-reversed answer tone, which is encoded using a voice protocol, such as G.723.1, G.711, G.729 or

the like. In the event that G1 120 fails to detect the phase reversal, G1 120 does not disable its echo canceller, and M1 110 and M2 150 connection speed may fallback to lower speeds as a result of the interference caused by the echo canceller of G1 120.

One approach for avoiding the failure to detect the phase reversal by G1 120 is that, G2 140 performs the answer tone detection and, upon detection of ANS, ANSam, /ANS and /ANSam, transmits an appropriate message indicating one of ANS, ANSam, /ANS and /ANSam. However, this approach has a major drawback, because the phase the phase reversal occurs about every 450ms, and G2 140 must wait at least that long to determine a phase reversal in order to decide which one of ANS, ANSam, /ANS and /ANSam messages should be sent to G1 120.

The invention of independent claims of the present application overcomes this major drawback in the art by a division of the answer tone and the phase reversal detection process, and for example, according to the invention of claim 1, by sending a first message indicative of the detection of the answer tone by G2 140 to G1 120, which detection may occur in about 50-100ms, and then continuing to look for the phase reversal, and sending a second message regarding the phase reversal by G2 140 to G1 120, which detection may occur in about 450ms.

A. Claim 1

Independent claim 1 claims a communication method for use by a first gateway device (G2 370) to enable communication between a first modem (M2 302) and a second

modem (M1 301), the first gateway device (G2 370) being capable of communicating with the first modem (M2 302) over a first communication line (see FIG. 3), the first gateway device (G2 370) being capable of communicating with a second gateway device (G1 350) over a packet network (330), the second gateway device (G1 350) being capable of communicating with the second modem (M1 301) over a second communication line (see FIG. 3).

The method comprises: receiving (G2 370) a call request for the first modem (M2 302) from the second gateway device (G1 350) over the packet network (330); placing (G2 370) a call to the first modem (M2 302) over the first communication line (see FIG. 3) in response to the receiving; detecting (G2 370) an answer tone transmitted from the first modem (M2 302) over the first communication line (see FIG. 3) in response to the placing; transmitting (G2 370) a first message indicative of the answer tone to the second gateway device (G1 350) over the packet network (330); detecting (G2 370) a phase reversal in the answer tone; and transmitting (G2 370) a second message indicative of the phase reversal to the second gateway device (G1 350) over the packet network (330).

Also, please see steps 230, 235, 240, 245, 260 and 265 of FIG. 2 and related detailed description at page 11, line 8 through page 14, line 2.

B. Claim 7

Independent claim 7 claims a first gateway device (G2 370) configured to enable communication between a first modem (M2 302) and a second modem (M1 301), the first

gateway device (G2 370) being capable of communicating with the first modem (M2 302) over a first communication line (see FIG. 3), the first gateway device (G2 370) being capable of communicating with a second gateway device (G1 350) over a packet network (330), the second gateway device (G1 350) being capable of communicating with the second modem (M1 301) over a second communication line (see FIG. 3).

Similar to claim 1 above, and as shown in FIG. 3, the first gateway device (G2 370) comprises: a receiver configured to receive a call request for the first modem from the second gateway device over the packet network; a call module configured to place a call to the first modem over the first in response to the receiver receiving the call request; an answer tone detector configured to detect an answer tone transmitted from the first modem over the first communication line in response to the call; a transmitter configured to transmit a first message indicative of the answer tone to the second gateway device over the packet network; a phase reversal detector configured to detect a phase reversal in the answer tone; and the transmitter further configured to transmit a second message indicative of the phase reversal to the second gateway device over the packet network.

Also, please see steps 230, 235, 240, 245, 260 and 265 of FIG. 2 and related detailed description at page 11, line 8 through page 14, line 2.

C. Claim 13

Independent claim 13 claims a communication method for use by a first gateway (G1 350) device to enable communication between a first modem (M1 301) and a second

modem (M2 302), the first gateway device (G1 350) being capable of communicating with the first modem (M1 301) over a first communication line (see FIG. 3), the first gateway device (G1 350) being capable of communicating with a second gateway device (G2 370) over a packet network (330), the second gateway device (G2 370) being capable of communicating with the second modem (M2 302) over a second communication line (see FIG. 3).

The method comprises: receiving (G1 350) a call from the first modem (M1 301) over the first communication line (see FIG. 3) for the second modem (M2 302) from; placing (G1 350) a call request to the second gateway device (G2 370) over the packet network (330) in response to the receiving; receiving (G1 350) a first message indicative of an answer tone from the second gateway device (G2 370) over the packet network (330) in response to the placing; receiving (G1 350) a second message indicative of the phase reversal from the second gateway device (G2 370) over the packet network (330) in response to the placing; and disabling an echo canceller (see FIG. 3) of the first gateway device (G1 350) in response to the receiving the second message indicative of the phase reversal.

Also, please see steps 230, 235, 240, 245, 260 and 265 of FIG. 2 and related detailed description at page 11, line 8 through page 14, line 2.

D. Claim 18

Independent claim 18 claims a first gateway device (G1 350) configured to enable communication between a first modem (M1 301) and a second modem (M2 302), the first gateway device (G1 350) being capable of communicating with the first modem (M1 301) over a first communication line (see FIG. 3), the first gateway device (G1 350) being capable of communicating with a second gateway device (G2 370) over a packet network (330), the second gateway device being (G2 370) capable of communicating with the second modem (M2 302) over a second communication line (see FIG. 3).

Similar to claim 13 above, and as shown in FIG. 3, the first gateway device (G1 350) comprises: a modem receiver configured to receive a call from the first modem over the first communication line for the second modem from; a call module configured to place a call request to the second gateway device over the packet network in response to the call; network receiver configured to receive a first message indicative of an answer tone from the second gateway device over the packet network in response to the call request; the network receiver further configured to receive a second message indicative of the phase reversal from the second gateway device over the packet network in response to the call request; and an echo canceller, wherein the first gateway device disables the echo canceller in response to the message indicative of the phase reversal.

Also, please see steps 230, 235, 240, 245, 260 and 265 of FIG. 2 and related detailed description at page 11, line 8 through page 14, line 2.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1, 3, 6, 7, 9, 13, 15, 18 and 20 are rejected, under 35 USC § 103(a), as being unpatentable over Applicant's Admitted Prior Art ("AAPA") in view of Schulzrinne, et al. ("RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals," Internet-Draft, November 28, 1999, IETF) ("Schulzrinne").

ARGUMENT

A. Rejection of Claims 1, 3, 6, 7, 9, 13, 15, 18 and 20 under 35 USC § 103(a)

In view of Appellant's first Appeal Brief Appellant, the Examiner withdrew the previous of rejection of claims 1, 3, 6, 7, 9, 13, 15, 18 and 20, under 35 USC § 103(a), as being unpatentable over Wildfeuer, et al. (USPN 6,829,244) ("Wildfeuer") in view of McNeill, et al. (USPN 7,161,962) ("McNeill"), and further in view of ("RTP Payload for DTMF Digits, Telephone Tones and Telephone Signals," RFC 2833, IETF, May 2000) ("RFC-2833"). However, in the *Non-Final* Office Actions of May 30, 2008 and the *Final* Office Action of January 22, 2009, the Examiner has continued to reject laims 1, 3, 6, 7, 9, 13, 15, 18 and 20, under 35 USC § 103(a), as being unpatentable over AAPA in view of Schulzrinne. For the reasons stated below, Appellant respectfully disagrees.

The Examiner states that AAPA discloses all the elements of independent claims 1 and 7, except that AAPA "fails to disclose "transmitting a first message to indicate an answer tone to the second gateway over the packet network and sending a second message indicating a phase reversal to the second gateway over the packet network."

(Office Action of January 22, 2009, Page 3.) However, the Examiner states that Schulzrinne "discloses a method for telephone gateways connected to packet networks where the gateway sends ... an ANS (answer tone) and /ANS (answer tone with phase reversals) .... The audio event packet is sent by a gateway to another gateway ... as soon as the audio event is recognized or detected ...." (Office Action of January 22, 2009, Pages 3-4.)

Appellant respectfully submits that AAPA and Schulzrinne, individually or in combination, fail to disclose, teach or suggest the following elements of claim 1: "detecting an answer tone transmitted from said first modem over said first communication line in response to said placing; transmitting a first message indicative of said answer tone to said second gateway device over said packet network; detecting a phase reversal in said answer tone; and transmitting a second message indicative of said phase reversal to said second gateway device over said packet network."

With respect to AAPA, as acknowledged by the Examiner, "AAPA fails to disclose transmitting a first message to indicate an answer tone to the second gateway over the packet network and sending a second message indicating a phase reversal to the second gateway over the packet network."

However, the Examiner alleges that these elements of claim 1 are disclosed by Schulzrinne (see Office Action of January 22, 2009, Pages 3-4):

> Schulzrinne discloses a method for telephone gateways connected to packet networks where the gateway sends an encoded audio event packet (pg 3, section 3.2; event packet is a message) for

> fax-related tones (pg 8, section 3.11) including an ANS (answer tone) and /ANS (answer tone with phase reversals) encoded with decimal values 32 and 33 (pg 10, table 3). The audio event is sent by a gateway to another gateway or receiver (pg 2, Section 2, last partial paragraph) **as soon as the audio event is recognized or detected** (pg 5, section 3.6, first sentence). (emphasis added.)

Appellant respectfully submits that because the phase reversal appears every 450ms, "the audio event" for either ANS or /ANS is not recognized or detected in Schulzrinne until over 450ms into the answer tone detection. Appellant respectfully submits that there is no disclosure, teaching or suggestion in Schulzrinne that an audio event distinguishing ANS and /ANS (or ANSam or /ANSam) occurs prior to 450ms after the start of the answer tone.

The Examiner assumes that merely because Schulzrinne provides messages for supporting modem tones ANS, /ANS, ANSam and /ANSam, Schulzrinne teaches that a combination of these messages can be sent during the same call. Appellant respectfully submits that there is no disclosure, teaching or suggestion in Schulzrinne that when a first gateway modem detects an answer tone, the first gateway modem transmits an ANS message to a second gateway modem, and that when the first gateway modem later detects a phase reversal in the answer tone, the first gateway modem transmits an /ANS message to the second gateway modem following the transmission of the ANS message. Also, there is no disclosure, teaching or suggestion in Schulzrinne that when a first gateway modem detects a modulated answer tone, the first gateway modem transmits an ANSam message to a second gateway modem, and that when the first gateway modem

later detects a phase reversal in the answer tone, the first gateway modem transmits an /ANSam message to the second gateway modem following the transmission of the ANSam message.

Rather, Schulzrinne merely defines the messages, and does not describe various schemes for utilization of the messages. Further, conventional schemes, which use Schulzrinne messages, after detecting the answer tone, wait to determine whether the answer tone includes a phase reversal, and if there is no phase reversal, transmit a single message, such as ANS or ANSam, to the second gateway modem, and if there is a phase reversal, transmit a single message, such as /ANS or /ANSam, to the second gateway modem. Appellant respectfully submits that the AAPA and Schulzrinne, individually or in combination, fail to disclose, teach or suggest anything more than the conventional art, and that more than a single message is transmitted for detecting an answer tone with phase reversal.

Appellant respectfully submits that because the phase reversal appears every 450ms, transmission of a single message creates a delay, because it would require the first gateway to wait for the phase reversal to occur before determining the type of message to be sent to the second gateway. As a result, the second gateway cannot start generating an answer for its local client modem until the single message arrives from the first gateway. In contrast, the invention of claim 1 provides for separate messages, and as a result, the second gateway can receive the answer tone message first and start generating an answer

tone, without any delay, while the first gateway is determining a phase reversal to send a second message to the second gateway.

In further support of the above remarks, Appellant respectfully directed the Examiner's attention to the accompanying to Exhibits A, B, C and D in the Evidence Appendix, attached hereto, which clearly show that not only those of ordinary skill in the art would interpret Schulzrinne to disclose what the Examiner has alleged, but, in fact, even "experts" in the field understood that Schulzrinne had a major shortcoming that needed to be cured in a revised RFC 2833. To this end, the Examiner's attention was respectfully directed to Exhibit B, a Cisco message, dated October 26, 2002 (about three years after Schulzrinne), which reads:

> Since at least 450 ms is needed to detect a phase reversal, it is not possible to discriminate between ANS and /ANS before 450 ms. However, this results in an unacceptable delay in informing the far end that a 2100 Hz signal (whatever its variant) has been detected. It takes less than 200 ms to detect that fact that this is a 2100 Hz signal. (emphasis added.)
>
> Question 1: Does RFC 2833 consider it acceptable to send an ANS event (200 ms) and then an /ANS event (450 ms), thereby using the /ANS event as an "update" of the ANS event? The same consideration would apply to ANSam and /ANSam. **This would change how you have defined these events in RFC 2833**. (emphasis added.)

Next, in Exhibit C, on October 30, 2002, and in response to the Cisco message, Change #2 for a revised RFC 2833 is drafted, which reads:

> An ANS or ANSam event packet should not be sent until it is possible to discriminate between an ANS and ANSam event. It is however, permissible to send an ANS or ANSam event packet before

> phase reversals can be detected. Phase reversals, if any, occur at intervals of 450 +/- 25 ms. If a phase reversal is detected after an ANS or ANSam event packet is sent, it must be followed by the transmission of an /ANS or /ANSam event packet.

Finally, in Exhibit D, on November 4, 2002, a revised portion of RFC 2833 is provided (also see http://www.cs.columbia.edu/~hgs/rtp/drafts/draft-ietf-avt-rfc2833bis-02.txt and http://www.cs.columbia.edu/~hgs/rtp/drafts/draft-ietf-avt-rfc2833bis-02.pdf (page 10)), which reads:

> An ANS or ANSam event packet should not be sent until it is possible to discriminate between an ANS and ANSam event. It is however, permissible to send an ANS or ANSam event packet before phase reversals can be detected. Phase reversals, if any, occur at intervals of 450 +/- 25 ms. If a phase reversal is detected after an ANS or ANSam event packet is sent, it must be followed by the transmission of an /ANS or /ANSam event packet. (emphasis added.)

In view of the above evidence, Appellant respectfully submits that Schulzrinne does not disclose, teach or suggest to one of ordinary skill in the art the following elements of claim 1 "detecting an answer tone transmitted from said first modem over said first communication line in response to said placing; transmitting a first message indicative of said answer tone to said second gateway device over said packet network; detecting a phase reversal in said answer tone; and transmitting a second message indicative of said phase reversal to said second gateway device over said packet network." As stated above, in the Cisco message, even an expert in the field raised a question about the shortcoming in the then RFC 2833, requested a change to RFC 2833,

and stated that addressing the shortcoming would in fact **change how you (i.e. IETF) have defined these events in RFC 2833**.

In response to Appellant's remarks based on written evidence by experts in the field, the *Final* Office Action of January 22, 2009, provides:

> 3. The Affidavit under 37 CFR 1.132 filed on 10/27/2008 is insufficient to overcome the rejection of claims 1, 3, 6, 7, 9, 12, 13, 15, 18, and 20 based upon AAPA in view of Schulzrinne as set forth in the last Office action because: the submitted declaration does not demonstrate that the Applicant's claimed invention is non-obvious before the references used under 103(a) rejection. Appendices A, B, and C do not show the claimed invention and do not provide evidence of the Applicant's claims being non-obvious, thus are not related to the current rejection. The Examiner agrees the Appendices A, B, and C demonstrate an expert's second opinion of the state of the art and they demonstrate an improvement of the prior art, while they do not appear to show that the art at the time of the invention was non-obvious or the technique suggested in the prior art would not have resulted in a successfully operating modem connection.

Appellant respectfully disagrees with the above statements. In the *Non-Final* Office Actions of May 30, 2008 and the *Final* Office Action of January 22, 2009, the Examiner states that AAPA does not disclose "transmitting a first message to indicate an answer tone to the second gateway over the packet network and sending a second message indicating a phase reversal to the second gateway over the packet network," and then cites Schulzrinne for disclosing, teaching and suggesting these missing elements of the claims. The Evidence that has been submitted shows that "experts" in the field (and not just those of ordinary skill in the art), at the time, believed that addressing the shortcoming in the art (i.e. sending two messages instead of one) would in fact **change**

how you (i.e. IETF) have defined these events in RFC 2833. Therefore, Schulzrinne does not stand for what it has been cited for. In fact, the Examiner's justification for extending Schulzrinne beyond its disclosure is as follows (see the *Final* Office Action of January 22, 2009, page 4):

> Schulzrinne realizes the benefit of improved tone response by using event packets instead of low-rate voice codes which cannot guarantee the quality of tone signals (pg 1, section 1, first and second paragraphs). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the event packets of Schulzrinne to send messages for the answer tone and phase-reversed answer tone detection events in AAPA.

However, the benefit that the Examiner is citing is realized by sending a single message as well, which is what Schulzrinne stands for, i.e. detecting the answer tone, wait to determine whether the answer tone includes a phase reversal, and if there is no phase reversal, transmit **a single message**, such as ANS or ANSam, to the second gateway modem (rather than using a low-rate voice codec), and if there is a phase reversal, transmit a single message, such as /ANS or /ANSam, to the second gateway modem. It is respectfully submitted that there is no teaching or suggestion by this cited benefit to extend the disclosure of Schulzrinne to stand for sending two messages, i.e. transmitting a first message indicative of said answer; detecting a phase reversal in said answer tone; and transmitting a second message indicative of the phase reversal.

Accordingly, for the reasons stated above, Appellant respectfully submits that claim 1 is patentably distinguishable over AAPA and Schulzrinne, individually or in

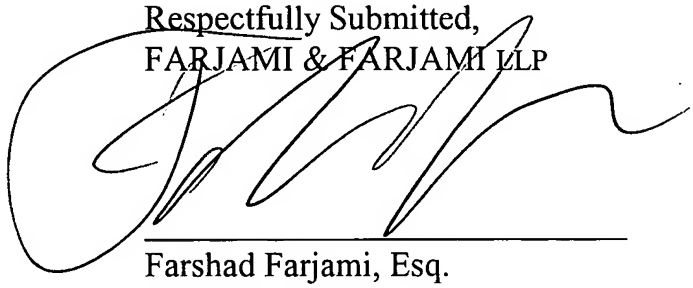
combination, and should be allowed. Further, independent claims 7, 13 and 18 should also be allowed for similar reasons. Also, claims 3, 6, 9, 15 and 20 depend from claims 7, 13 and 18, and should also be allowed.

CONCLUSION

Based on the foregoing reasons, the present invention, as defined by independent claims 1, 7, 13 and 18, and claims depending therefrom, is patentably distinguishable over the art cited by the Examiner, and should be allowed.

This Appeal Brief is submitted herewith with an Appendix of the appealed claims and the requisite fee for filing the Appeal Brief.

Respectfully Submitted,
FARJAMI & FARJAMI LLP



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APPENDIX OF CLAIMS ON APPEAL

Claim 1: A communication method for use by a first gateway device to enable communication between a first modem and a second modem, said first gateway device being capable of communicating with said first modem over a first communication line, said first gateway device being capable of communicating with a second gateway device over a packet network, said second gateway device being capable of communicating with said second modem over a second communication line, said method comprising:

receiving a call request for said first modem from said second gateway device over said packet network;

placing a call to said first modem over said first communication line in response to said receiving;

detecting an answer tone transmitted from said first modem over said first communication line in response to said placing;

transmitting a first message indicative of said answer tone to said second gateway device over said packet network;

detecting a phase reversal in said answer tone; and

transmitting a second message indicative of said phase reversal to said second gateway device over said packet network.

Claim 3: The method of claim 1, wherein said first message is indicative of an amplitude-modulated answer tone.

Claim 6: The method of claim 1, wherein said second gateway device includes an echo canceller, and the method further comprises disabling said echo canceller in response to receiving said message indicative of said phase reversal from said first gateway device.

Claim 7: A first gateway device configured to enable communication between a first modem and a second modem, said first gateway device being capable of communicating with said first modem over a first communication line, said first gateway device being capable of communicating with a second gateway device over a packet network, said second gateway device being capable of communicating with said second modem over a second communication line, said first gateway device comprising:

a receiver configured to receive a call request for said first modem from said second gateway device over said packet network;

a call module configured to place a call to said first modem over said first in response to said receiver receiving said call request;

an answer tone detector configured to detect an answer tone transmitted from said first modem over said first communication line in response to said call;

a transmitter configured to transmit a first message indicative of said answer tone to said second gateway device over said packet network;

a phase reversal detector configured to detect a phase reversal in said answer tone; and

said transmitter further configured to transmit a second message indicative of said phase reversal to said second gateway device over said packet network.

Claim 9: The first gateway device of claim 7, wherein said first message is indicative of an amplitude-modulated answer tone.

Claim 12: The first gateway device of claim 7, wherein said second gateway device includes an echo canceller, and said second gateway device disables said echo canceller in response to receiving said message indicative of said phase reversal from said first gateway device.

Claim 13: A communication method for use by a first gateway device to enable communication between a first modem and a second modem, said first gateway device being capable of communicating with said first modem over a first communication line, said first gateway device being capable of communicating with a second gateway device over a packet network, said second gateway device being capable of communicating with said second modem over a second communication line, said method comprising:

receiving a call from said first modem over said first communication line for said second modem from;

placing a call request to said second gateway device over said packet network in response to said receiving;

receiving a first message indicative of an answer tone from said second gateway device over said packet network in response to said placing;

receiving a second message indicative of said phase reversal from said second gateway device over said packet network in response to said placing; and

disabling an echo canceller of said first gateway device in response to said receiving said second message indicative of said phase reversal.

Claim 15: The method of claim 13, wherein said first message is indicative of an amplitude-modulated answer tone.

Claim 18: A first gateway device configured to enable communication between a first modem and a second modem, said first gateway device being capable of communicating with said first modem over a first communication line, said first gateway device being capable of communicating with a second gateway device over a packet network, said second gateway device being capable of communicating with said second modem over a second communication line, said first gateway device comprising:

a modem receiver configured to receive a call from said first modem over said first communication line for said second modem from;

a call module configured to place a call request to said second gateway device over said packet network in response to said call;

a network receiver configured to receive a first message indicative of an answer tone from said second gateway device over said packet network in response to said call request;

said network receiver further configured to receive a second message indicative of said phase reversal from said second gateway device over said packet network in response to said call request; and

an echo canceller, wherein said first gateway device disables said echo canceller in response to said message indicative of said phase reversal.

Claim 20: The first gateway device of claim 18, wherein said first message is indicative of an amplitude-modulated answer tone.

RELATED PROCEEDINGS APPENDIX

(NONE)

EVIDENCE APPENDIX

1. Exhibit A is a Declaration by Farshad Farjami, under 37 C.F.R. § 1.132, submitted by Appellant on October 27, 2008, and considered by the Examiner as part of Appellant's Response to Office Action of May 30, 2008.

2. Exhibit B is a Cisco message, dated October 26, 2002 (about three years after Schulzrinne), submitted by Appellant on October 27, 2008, and considered by the Examiner as part of Appellant's Response to Office Action of May 30, 2008.

3. Exhibit C is a response to the Cisco message, submitted by Appellant on October 27, 2008, and considered by the Examiner as part of Appellant's Response to Office Action of May 30, 2008.

4. Exhibit D is a revised portion of RFC 2833, submitted by Appellant on October 27, 2008, and considered by the Examiner as part of Appellant's Response to Office Action of May 30, 2008.

EXHIBIT A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Chen, et. al.
Serial No.:	10/631,947
Filed:	July 30, 2003
Art Unit:	2616
Examiner:	O'Connor, Brian T.
Title:	METHOD AND SYSTEM FOR CONFIGURING GATEWAYS TO FACILITATE A MODEM CONNECTION OVER A PACKET NETWORK

DECLARATION UNDER 37 C.F.R. § 1.132

Assistant Commissioner for Patents
Washington, D.C. 20231-0001

Dear Assistant Commissioner:

I, Farshad Farjami, declare as follows:

1. I am a partner at Farjami & Farjami LLP, an intellectual property law firm, located at 26522 La Alameda Ave., Suite 360, Mission Viejo, California 92691.

2. I declare that copies of all documents attached to this declaration, as Appendices A, B and C, are true and accurate copies of such documents.

3. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine of imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced patent application or any patent issuing thereon.

10/24/08
Date

Farshad Farjami

EXHIBIT B

[Date Prev][Date Next][Thread Prev][Thread Next][Date Index][Thread Index]

[AVT] Re: Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam

- *To*: Rajesh Kumar <rkumar@cisco.com>
- *Subject*: [AVT] Re: Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
- *From*: Henning Schulzrinne <hgs@cs.columbia.edu>
- *Date*: Sat, 26 Oct 2002 05:02:07 -0400
- *Cc*: avt@ietf.org, bfoster@cisco.com, hisham@cisco.com, flemming Andreasen <fandreas@cisco.com>
- *List-help*: <mailto:avt-request@ietf.org?subject=help>
- *List-id*: Audio/Video Transport Working Group <avt.ietf.org>
- *List-post*: <mailto:avt@ietf.org>
- *List-subscribe*: <https://www1.ietf.org/mailman/listinfo/avt>,<mailto:avt-request@ietf.org?subject=subscribe>
- *List-unsubscribe*: <https://www1.ietf.org/mailman/listinfo/avt>,<mailto:avt-request@ietf.org?subject=unsubscribe>
- *Organization*: Columbia University
- *References*: <4.3.2.7.2.20021024154549.01dcb648@mira-sjc5-8.cisco.com>
- *Sender*: avt-admin@ietf.org
- *User-agent*: Mozilla/5.0 (Windows; U; Windows NT 5.0; en-US; rv:1.1) Gecko/20020826

I've been relying on the expertise of others in describing these. I would thus value a more concise and V.25-compliant definition of these events. Can you provide text?

Rajesh Kumar wrote:

> Henning,
> There are certain issues with the definition of the ANS, /ANS, ANSam and /ANSam events that need clarification.
>
> Since at least 450 ms is needed to detect a phase reversal, it is not possible to discriminate between ANS and /ANS before 450 ms. However, this results in an unacceptable delay in informing the far end that a 2100 Hz signal (whatever its variant) has been detected. It takes less than 200 ms to detect that fact that this is a 2100 Hz signal.
>
> Question 1: Does RFC 2833 consider it acceptable to send an ANS event (200 ms) and then an /ANS event (450 ms), thereby using the /ANS event as an "update" of the ANS event? The same consideration would apply to ANSam and /ANSam. This would change how you have defined these events in RFC 2833.
>
> Queston 2: Your use of the "bar" or "slash" is at odds with that of the ITU V.25. In the ITU specification, /ANS is not a separate signal but refers to the 2100 Hz cycle during which phase is reversed. Thus, the RFC 2833 definition of /ANS corresponds to the following ITU V.25 sequence, where each element in the sequence is one cycle:
> ANS, /ANS, ANS, /ANS, ANS, /ANS, ANS
>
> However, I have no problem with your re-definition of that the "bar" or "slash" means. I only want to point out that you say in RFC 2833 that your definition is equivalent to the ITU's, when it isn't. Please look at Figure 3 of ITU V.25 and add the applicable clarification in your document.
>
> Thanks,

Rajesh

- Follow-Ups:
  - [AVT] Suggested changes to RFC 2833 re: fax/modem tones
    - *From:* Rajesh Kumar
  - Re: [AVT] Re: Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
    - *From:* Rajesh Kumar

- References:
  - [AVT] Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
    - *From:* Rajesh Kumar

- Prev by Date: Re: [AVT] 2833bis - hook events
- Next by Date: [AVT] MWPP implementation
- Previous by thread: [AVT] Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
- Next by thread: Re: [AVT] Re: Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
- Index(es):
  - Date
  - Thread

EXHIBIT C

[Date Prev][Date Next][Thread Prev][Thread Next][Date Index][Thread Index]

[AVT] Suggested changes to RFC 2833 re: fax/modem tones

- *To*: Henning Schulzrinne <hgs@cs.columbia.edu>
- *Subject*: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
- *From*: Rajesh Kumar <rkumar@cisco.com>
- *Date*: Wed, 30 Oct 2002 14:08:30 -0800
- *Cc*: avt@ietf.org
- *In-reply-to*: <3DBA5A0F.7000305@cs.columbia.edu>
- *List-help*: <mailto:avt-request@ietf.org?subject=help>
- *List-id*: Audio/Video Transport Working Group <avt.ietf.org>
- *List-post*: <mailto:avt@ietf.org>
- *List-subscribe*: <https://www1.ietf.org/mailman/listinfo/avt>,<mailto:avt-request@ietf.org?subject=subscribe>
- *List-unsubscribe*: <https://www1.ietf.org/mailman/listinfo/avt>,<mailto:avt-request@ietf.org?subject=unsubscribe>
- *References*: <4.3.2.7.2.20021024154549.01dcb648@mira-sjc5-8.cisco.com>
- *Sender*: avt-admin@ietf.org

Henning,
I have sent you an email a few minutes back with an RFC2833bis enclosure, and the suggested changes marked. In the present email, I am listing points from that enclosure for review by the AVT group. The requested changes are:

Change #1: I have changed the definition of the volume field in Section 3.5. You has rightly added Volume? columns to the event tables. However, the text in Section 3.5 was wrong in that it said volume was pertinent to DTMF only. Volume is important for modem and fax events, and some other categories of events. The new text is as follows:

volume: For DTMF digits and other events representable as tones,
this field describes the power level of the tone, expressed
in dBm0 after dropping the sign. Power levels range from 0
to -63 dBm0. The range of valid DTMF is from 0 to -36 dBm0
(must accept); lower than -55 dBm0 must be rejected (TR-
TSY-000181, ITU-T Q.24A). Thus, larger values denote lower
volume. If this field is not defined for an event,

it is set to zero by the sender and is

ignored by the receiver. If a zero volume is indicated for
an event for which the volume field is defined, then the receiver

may reconstruct the volume from interpolation. This allows
backwards compatibility with RFC 2833, where the volume field
was specified as undefined for non-DTMF events.

Change #2: I have re-done the definitions of ANS, /ANS, ANSam and /ANSam to indicate that these definitions follow semantics that are different from V.25 semantics, and for a good reason. I have also added precautions that must be followed when detecting and reporting these events. The new definitions are as follows:

ANS: <<<---definition unchanged---------->>>

/ANS: This is the same signal as ANS, except that it reverses phase at an interval of 450 +/- 25 ms. It disables both echo cancellers and echo suppressors. (In the ITU Recommendation V.25 [8], an ANS with a bar on top refers to individual phase-reversed cycles rather than to the entire signal.)

ANSam: <<<---definition unchanged---------->>>

/ANSam: <<<---definition unchanged---------->>>

These definitions of the ANS, /ANS, ANSam and /ANSam tones refer to the entire signal. Unlike ITU Recommendation V.25 [8], they do not refer to individual 450 ms cycles.

An ANS or ANSam event packet should not be sent until it is possible to discriminate between an ANS and ANSam event. It is however, permissible to send an ANS or ANSam event packet before phase reversals can be detected. Phase reversals, if any, occur at intervals of 450 +/- 25 ms. If a phase reversal is detected after an ANS or ANSam event packet is sent, it must be followed by the transmission of an /ANS or /ANSam event packet.

Change #3: I have added a new ANS event, ANS2225. I have done so per an action item from ITU SG16 to request you for this event. This event is used in equipment for the disabled and it must not be confused with the other ANS events. Of course, a new number needs to be allocated to this event. I have not done that. The new event is defined as follows:

ANS2225: This 2225 Hz answer tone is described in ITU Recommendation

V.18, Annex D for one of several classes of modems operating in the text telephone mode. It is also referred to in ITU Recommendation V.22. This is a pure tone with no amplitude modulation and no semantics attached to phase reversals, if there are any.

	Event number	Volume????
ANS2225	??	yes

Explanatory note to Henning: Initially a proprietary "Bell System" method, the 2225 Hz answer tone is now included in ITU V.18, Annex D which addresses TDD (telecommunications for the disabled) equipment. It is necessary to accommodate it for completeness, and for compliance with various legal ordinances. A distinct number must be allocated to this event since it must be differentiated from the normal, 2100 Hz ANS when reproduced at the far-end gateway.

The following folks have helped me create the suggested changed text: Alex Urquizo, Dan Deliberato, Herb Wildfeur and Mehryar Garakani, Bill Foster, Flemming Andreasen and Hisham Abdelhamid.

Please comment on these recommended changes.

Thanks,

Rajesh

At 05:02 AM 10/26/2002 -0400, Henning Schulzrinne wrote:

I've been relying on the expertise of others in describing these. I would thus value a more concise and V.25-compliant definition of these events. Can you provide text?

Rajesh Kumar wrote:

Henning,
There are certain issues with the definition of the ANS, /ANS, ANSam and /ANSam events that need clarification.
Since at least 450 ms is needed to detect a phase reversal, it is not possible to discriminate between ANS and /ANS before 450 ms. However, this results in an unacceptable delay in informing the far end that a 2100 Hz signal (whatever its variant) has been detected. It takes less than 200 ms to detect that fact that this is a 2100 Hz signal.
Question 1: Does RFC 2833 consider it acceptable to send an ANS event (200 ms) and then an /ANS event (450 ms), thereby using the /ANS event as an "update" of the ANS event? The same consideration would apply to ANSam and /ANSam. This would change how you have defined these events in RFC 2833.
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ANS, /ANS, ANS, /ANS, ANS, /ANS, ANS
However, I have no problem with your re-definition of that the "bar" or "slash" means. I only want to point out that you say in RFC 2833 that your definition is equivalent to the ITU's, when it isn't. Please look at Figure 3 of ITU V.25 and add the applicable clarification in your document.
Thanks,
Rajesh

Audio/Video Transport Working Group
avt@ietf.org
https://www1.ietf.org/mailman/listinfo/avt

- **Follow-Ups:**
  - Re: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
    - *From:* Henning Schulzrinne
  - Re: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
    - *From:* Henning Schulzrinne
- **References:**
  - [AVT] Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
    - *From:* Rajesh Kumar
  - [AVT] Re: Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
    - *From:* Henning Schulzrinne
- Prev by Date: RE: [AVT] Re: Non-standard RFC 2833 definition of ANS, /ANS, ANSa m and /ANSam
- Next by Date: [AVT] I-D ACTION:draft-ietf-avt-ulp-06.txt
- Previous by thread: Re: [AVT] Re: Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
- Next by thread: Re: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
- Index(es):
  - Date
  - Thread

EXHIBIT D

[Date Prev][Date Next][Thread Prev][Thread Next][Date Index][Thread Index]

Re: [AVT] Suggested changes to RFC 2833 re: fax/modem tones

- *To*: Rajesh Kumar <rkumar@cisco.com>
- *Subject*: Re: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
- *From*: Henning Schulzrinne <hgs@cs.columbia.edu>
- *Date*: Mon, 04 Nov 2002 13:51:32 -0500
- *Cc*: avt@ietf.org
- *In-reply-to*: <4.3.2.7.2.20021024154549.01dcb648@mira-sjc5-8.cisco.com>
- *List-help*: <mailto:avt-request@ietf.org?subject=help>
- *List-id*: Audio/Video Transport Working Group <avt.ietf.org>
- *List-post*: <mailto:avt@ietf.org>
- *List-subscribe*: <https://www1.ietf.org/mailman/listinfo/avt>,<mailto:avt-request@ietf.org?subject=subscribe>
- *List-unsubscribe*: <https://www1.ietf.org/mailman/listinfo/avt>,<mailto:avt-request@ietf.org?subject=unsubscribe>
- *References*: <4.3.2.7.2.20021024154549.01dcb648@mira-sjc5-8.cisco.com> <4.3.2.7.2.20021030135422.01fed858@mira-sjc5-8.cisco.com>
- *Sender*: avt-admin@ietf.org
- *User-agent*: Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.2b) Gecko/20021016

I've incorporated your text on ANS and related tones, with minor tweaks. Since I missed the -0x cut-off, a revised version of the I-D won't appear until after IETF55, but

http://www.cs.columbia.edu/~hgs/rtp/drafts/draft-ietf-avt-rfc2833bis-02.txt
http://www.cs.columbia.edu/~hgs/rtp/drafts/draft-ietf-avt-rfc2833bis-02.pdf

has a preview.

> These definitions of the ANS, /ANS, ANSam and /ANSam tones refer to the entire signal. Unlike ITU Recommendation V.25 [8], they do not refer to individual 450 ms cycles.
>
> An ANS or ANSam event packet should not be sent until it is possible to discriminate between an ANS and ANSam event. It is however, permissible to send an ANS or ANSam event packet before phase reversals can be detected. Phase reversals, if any, occur at intervals of 450 +/- 25 ms. If a phase reversal is detected after an ANS or ANSam event packet is sent, it must be followed by the transmission of an /ANS or /ANSam event packet.
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modulation and no semantics attached to phase reversals, if there are any.

	Event number	Volume????
ANS2225	??	yes

Explanatory note to Henning: Initially a proprietary "Bell System" method, the 2225 Hz answer tone is now included in ITU V.18, Annex D which addresses TDD (telecommunications for the disabled) equipment. It is necessary to accommodate it for completeness, and for compliance with various legal ordinances. A distinct number must be allocated to this event since it must be differentiated from the normal, 2100 Hz ANS when reproduced at the far-end gateway.

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Please comment on these recommended changes.

Thanks,

Rajesh

- Follow-Ups:
  - SV: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
    - *From:* Gunnar Hellstrom
- References:
  - [AVT] Non-standard RFC 2833 definition of ANS, /ANS, ANSam and /ANSam
    - *From:* Rajesh Kumar
  - [AVT] Suggested changes to RFC 2833 re: fax/modem tones
    - *From:* Rajesh Kumar
- Prev by Date: Re: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
- Next by Date: Re: [AVT] Draft agenda for Atlanta
- Previous by thread: Re: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
- Next by thread: SV: [AVT] Suggested changes to RFC 2833 re: fax/modem tones
- Index(es):
  - Date
  - Thread